The development and validation of the cyber dating abuse questionnaire among young couples

Erika Borrajo [a,⇑], Manuel Gámez-Guadix [b], Noemí Pereda [c], Esther Calvete [a]

[a] *University of Deusto, Department of Psychology and Education, Avda. de las Universidades, Apdo. 1, 48080 Bilbao, Spain*

[b] *Autonomous University of Madrid, Faculty of Psychology, Iván Pavlov, 6, Ciudad Universitaria de Cantoblanco, 28049 Madrid, Spain*

[c] *University of Barcelona, Department of Personality, Evaluation and Psychology Treatment, Passeig Vall d´Hebron, 171, 08035 Barcelona, Spain*

ABSTRACT

Cyber dating abuse is a growing phenomenon that has awakened little empirical interest. This study had two objectives: (1) to analyze the psychometric properties of the Cyber Dating Abuse Questionnaire (CDAQ), which is an instrument developed to comprehensively measure this phenomenon; and (2) to conduct an initial analysis of the prevalence and frequency of this type of abuse. The sample consisted of 788 young people between 18 and 30 years of age (77.3% women, mean age = 22.72 years, *SD* = 4.9). First, exploratory and confirmatory factor analyzes revealed a structure composed of two factors for the scales of victimization and for perpetration: *direct aggression* (an aggressive act with a deliberate intention to hurt the partner/ex-partner, such as insults or threats) and *monitoring/control* (the use of electronic means to control the partner/ex-

partner; for example, the use of personal passwords). Second, the analysis of the relationship between cyber dating abuse and other variables, such as offline physical and psychological violence and cyberbullying, provided additional evidence for the construct validity of the instrument. Third, the reliability analysis (Cronbach's alpha) revealed an adequate internal consisten- cy for the scale. Finally, the prevalence of direct aggression was higher than 10%, and the prevalence of control was greater than 70%, which indicate that both types of cyber abuse seem to be common behaviors among young couples. Finally, the contribution of the present study to previous empirical research and future research is discussed.

Keywords:

Cyber dating abuse, Control, Overt aggression, Psychometric properties, Scale development

1. Introduction

In recent years, communication and information technologies, primarily mobile phones and the Internet, have become essential elements in the relationships of young couples, representing the potential for relation maintenance, conflict or aggressions (Fox, Osborn, & Warber, 2014; Kellerman, Margolin, Borofsky, Iturralde, & Baucom, 2013; Schnurr, Mahatmya, & Basche, 2013). In this context, cyber dating abuse is an emerging problem (Hinduja & Patchin, 2011; Lyndon, Bonds-Raacke, & Cratty, 2011; Zweig, Dank, Yahner, & Lachman,

2013) with important outcomes for the mental health of its victims (Bennet, Guran, Ramos, & Margolin, 2011; Ybarra, 2004). The few studies that have examined the prevalence of such abuse found that between 12% and 17% of young people admit to committing some form of cyber abuse toward their partner (Bennet, Guran, Ramos, & Margolin, 2011; Korchmaros, Ybarra, Langhinrichsen-Rohling, Boyd, & Lenhart, 2013), and between 11% and 31.5% of young people report having been a victim of such abuse (Bennet et al., 2011; Cutbush, Williams, Miller, Gibbs, & Clinton-Sherrod, 2012; Hinduja & Patchin, 2011; Zweig et al., 2013). In addition, cyber dating abuse is related to other types of interpersonal aggression, such as offline dating violence (Bennet et al., 2011; Schnurr et al., 2013; Zweig et al., 2013), and cyberbullying (Cutbush, Silber Ashley, Kan, Hampton, & Hall, 2010; Hinduja & Patchin, 2011).

In contrast to the aggressions that take place in an offline con- text, online aggressions are characterized by the absence of geo- graphical and temporal boundaries (Kiriakidis & Kavoura, 2010; Smith, 2012). It is precisely the lack of boundaries that makes these aggressions particularly harmful for the victims (Bennet et al., 2011). Furthermore, the indirect rather than face-to-face nature of this type of aggression facilitates the contact with the victim (Kiriakidis & Kavoura, 2010; Smith, 2012), which constitutes an attractive feature for those who perpetrate cyber-aggression (Melander, 2010). Finally, accessibility of the information on social networks like Facebook has been found to have important implica- tions for the development of behaviors such as jealousy and con- frontation between the partners (e.g., Cohen, Bowman, & Borchert, 2014).

Although attention to the phenomenon of cyber dating abuse has increased in

recent years, knowledge about it is still limited. This paucity of empirical attention on the phenomenon has led to the lack of a common definition. There are also different denominations according to different authors: cyber dating abuse (Zweig et al., 2013), cyber-aggression (Schnurr et al., 2013), electronic dating violence (Hinduja & Patchin, 2011) or intimate partner cyber harassment (Melander, 2010). In the present work, we will use the term cyber dating abuse to refer both to aggres- sions and behaviors of severe surveillance of the partner, because it is more inclusive and widely used in the literature of partner abuse (e.g., Zweig et al., 2013).

In addition, there is a wide range of behaviors that have been used as indicators of cyber dating abuse. Namely, it includes behaviors such as the monitoring and surveillance of a partner or ex-partner (Burke, Wallen, Vail-Smith, & Knox, 2011; Lyndon et al., 2011; Southworth, Dawson, Frase, & Tucker, 2005), sending rude or humiliating comments (Hinduja & Patchin, 2011; Kellerman, Margolin, Borofsky, Baucom, & Iturralde, 2013; Ybarra & Mitchell, 2004), sending emails or threatening messages (Bennet et al., 2011; Jerin & Dolinsky, 2001; Zweig et al., 2013), and posting photos with the intention to humiliate the partner (Hinduja & Patchin, 2011; Lyndon et al., 2011).

This above lack of consistency is accompanied by few instru- ments with adequate psychometric properties to measure the var- ious aspects of cyber dating abuse, which considerably limits the study and understanding of this phenomenon. A review of the existing instruments that evaluate aspects of aggression and bully- ing through new technologies in dating relationships is presented in Table 1. As seen, most of the scales focus on specific types of cyber dating abuse such as, for example, excessive control behav- iors on

Facebook (e.g., Darvell, Walsh, & White, 2011; Lyndon et al., 2011). Some instruments measure only perpetration or vic- timization (e.g., Bennet et al., 2011; Fox & Warber, 2013), which may limit the understanding of this phenomenon because it has been found that both offline dating violence and online harassment perpetration and victimization are often reciprocal (Archer, 2000; Estévez, Villardón, Calvete, Padilla, & Orue, 2010; Kowalski & Limber, 2007; Straus, Hamby, Boney-McCoy, & Sugarman, 1996; Swahn, Alemdar, & Whitaker, 2010). Finally, the majority of studies do not provide evidence for the validity of the scales. Two excep- tions are the Controlling Partners Inventory (CPI) of Burke et al. (2011) and the Scale for Interpersonal Electronic Surveillance for Social Networking Sites (ISS) of Tokunaga (2011). Although these instruments are valuable starting points in the study of cyber dating abuse, they only focus on evaluating the control aspects of dating. Cyber dating abuse, however, has other important aspects. Another empirical question that has received some attention is whether cyber dating abuse has any relationship with other prox- imal phenomena such as offline dating violence and cyberbullying. Regarding the relation with offline dating aggression, it has been argued that cyber dating abuse constitutes a form of psychological dating aggression and, therefore, cyber dating abuse and offline psychological aggressions tend to co-occur and be related (Melander, 2010; Schnurr et al., 2013). The empirical evidence to date has supported the relationship between offline psychological aggression and cyber dating abuse (Cutbush et al., 2012; Hinduja & Patchin, 2011; Zweig et al., 2013). Regarding the relationship of cyber dating abuse with cyberbullying, both phenomena share common features such as the use of technology to monitor and control another person (Hinduja & Patchin, 2011).

At the empirical level, it has been found that those who admit perpetrating cyber dating abuse also tend to perpetrate cyberbullying (Cutbush et al., 2010; Hinduja & Patchin, 2011). For example, Hinduja and Patchin (2011) found that young people who perpetrated cyber- bullying were three times more likely to engage in cyber dating abuse behaviors than those who did not perpetrate aggressions against their peers.

1.1. The present study

Previous instruments to assess cyber dating abuse have limita- tions, which could contribute to explaining the lack of consistency in the results obtained concerning this problem. Therefore, our first objective was to develop and validate a comprehensive instrument to measure various types of perpetration and victimization of cyber dating abuse. Assessing both victimization and perpetration allows us to gain a complete perspective of the problem. In addition, we aimed to analyze the factor structure, internal consistency, and construct validity of the instrument through the analysis of rela- tionships with other variables that previous literature has shown to be associated with cyber dating abuse: psychological and physi- cal offline violence (e.g., Zweig et al., 2013) and cyberbullying (e.g., Hinduja & Patchin, 2011). Finally, to extend the limited empirical evidence available, the second objective of this study was to ana- lyze the prevalence and frequency of cyber dating abuse in young couples.

2. **Method**

2.1. Participants

The initial sample consisted of 834 adults aged between 18 and 30 years. The present study included only those participants who had been in a dating relationship at some point (94.4% of the total sample). Thus, the final sample consisted of 788 young adults (77.3% women, 22.2% men and 0.5% with no indicated gender) with a mean age of 22.72 (SD = 4.9). Of these, 73.2% currently had a part- ner, and 26.8% had previously been in a relationship. Regarding sexual orientation, 92.6% were heterosexual, 3.7% were homo- sexual, and 3.8% were bisexual. The average duration of the rela- tionships was 32.09 months (SD = 52.26). Overall, 4.6% of the participants described their relationship as new, 10.9% described their relationship as casual/open, 36.6% described their relation- ship as stable, 43.4% described their relationship as serious, and 4.6% were engaged to be married. Regarding the participants' educational level, 1.2% had completed compulsory education, 15.8% had a Bachelor's degree, 4.7% had received professional training, 66.1% held a degree in Engineering, and 12.3% had received a Masters' degree/PhD.

2.2. Measures

2.2.1. Sociodemographic questionnaire

We included a series of questions on age, sex, whether the par- ticipants were or had been in a relationship, sexual orientation, educational level,

length of relationship, and type of relationship.

2.2.2. Cyber dating abuse questionnaire

The questionnaire developed in this study consisted of 20 items that collected information about various types of cyber dating abuse, such as threats, identity theft, control, and humiliation. Each item consists of two parallel items: one for victimization and another for perpetration (e.g., ‘‘My partner or former partner made a comment on a wall of a social network to insult or humiliate me’’ and ‘‘I wrote a comment on the wall of a social network to insult or humiliate my partner or former partner’’). The response scale used was a 6-point Likert scale that asked how many times the behav- iors had occurred during the last year of the relationship: 1 (never), 2 (not in the last year, but it occurred before), 3 (rarely: 1 or 2 times), 4 (sometimes: between 3 and 10 times), 5 (often: between 10 and 20 times) and 6 (always: more than 20 times). Additionally, the context in which these behaviors occurred (jealousy, game/joke, anger/frus- tration, discussions, personality [he/she is], I did/did it first or other- wise) was evaluated by a multiple choice question. Because the development of the questionnaire is one of the main objectives of the study, it is described in the Result section.

Table 1
Instruments used in cyber dating abuse studies.

Measure name and reference	Dimensions/items	Psychometric evidence of the original instruments	Scale	Description
1. Perpetration of psychological teen dating violence (Korchmaros et al., 2013), adapted to Victimization in Dating Relationships Scales (Foshee et al., 1996)	Control (2) Jealousy (1) Degradation (1)		Perpetration	Assesses the frequency with which the person has committed psychological aggression in the past 12 months through phone calls, SMS, online and in person
2. Interpersonal electronic Surveillance for social networking sites (Fox & Warber, 2013) (Adapted to Tokunaga, 2011)	Surveillance (12)	Validity: EFA & CFA Reliability: α = .97	Perpetration	Frequency with which the partner exhibited surveillance and control behaviors on social networking sites
3. Facebook survey (Lyndon et al., 2011)	Covert provocation (5) Public harassment (5) Venting (3)		Perpetration	Frequency with which the partner exhibited control or monitoring behaviors on Facebook
4. Cyber Obsessional Pursuit (COP) Scale (Cupach & Spitzberg, 2000)	24 items	Reliability: α = .93	Perpetration	Frequency with which the partner has exhibited pursuit behaviors
5. Controlling Partner Inventory (CPI) (Burke et al., 2011)	Photos, Camera, GPS, Spyware (7) Excessive communication (4) Threats (3) Control behaviors (4)	Validity: EFA principal component analysis Reliability: α = .90.	Perpetration Victimization	Measures the frequency of perpetration and victimization of control behaviors and reviews the appropriateness of these behaviors
6. Electronic victimization (Bennet et al., 2011)	Hostility (7) Intrusion (7) Humiliation (5) Exclusion (3)	Reliability: Hostility (α = .74) Intrusion (α = .73) Humiliation (α = .74) Exclusion (α = .77)	Victimization	Frequency of victimization by partners and friends
7. Cyber dating abuse (Zweig et al., 2013)	Sexual cyber abuse (4) Non-sexual cyber abuse (12)	Sexual cyber abuse (victimization, α = .81; perpetration, α = .88) Non-sexual cyber dating abuse (victimization, α = .89; perpetration, α = .92)	Victimization Perpetration	Frequency of victimization and perpetration in the past year with recent partners
8. Online Obsessive Relational Intrusion (Chaulk & Jones, 2011)	Benevolent behavior (2) Potentially harmful (7) Dangerous (3)	Reliability: α = .71	Victimization Perpetration	Frequency of use of Facebook in behaviors such as starting a first contact, a second contact attempt, control or monitoring, expression and announcements aimed at or made by former partner
9. Facebook partner-monitoring (Darvell et al., 2011)			Perpetration	Using Facebook to monitor a partner's activities at least 3 times a week
10. E-mail and Instant Messaging (I-M) Harassment (Finn, 2004)			Victimization	Frequency of receiving insults, threats, harassments or inappropriate materials such as pornography through email or IM

2.2.3. *Dating violence (offline)*

Offline dating violence was measured by the Modified Conflicts Tactics Scale (Neidig, 1986; adapted to Spanish by Muñoz-Rivas et al., 2007). The scale consists of 12 items that measure the frequency of perpetration and victimization with respect to mild physical violence (e.g., ‘‘My partner or former partner pushed or grabbed me’’) and psychological violence (e.g.,’’ My partner has threatened to hit me or throw an object at me’’). The reliability for this sample was $a = .65$ for the Physical Violence scale (Victim- ization), $a = .81$ for the Physical Violence scale (Perpetration), $a = .59$ for the Psychological Violence scale (Victimization) and $a = .81$ for the Psychological Violence scale (Perpetration).

2.2.4. *Cyberbullying*

We used a reduced version of the Cyberbullying Questionnaire (CBQ; Calvete, Orue, Estevez, Villardón, & Padilla, 2010; Gámez- Guadix, Villa-George, & Calvete, 2014). This scale consists of four items that measure perpetration and four items that measure peer victimization (e.g., ‘‘Send threatening or insulting messages to others’’). The response scale had four possible responses: 0 (*never*); 1 (*1 or 2 times*); 2 (3 or 4 times); 3 (*5 or more times*). The reliability of the measure for this sample was $a = .67$ for the Perpetration scale and $a = .75$ for the Victimization scale.

2.3. *Procedure*

The procedure of the study was reviewed and approved by the Ethics Committee of the University of Deusto. The study was con- ducted through an online survey. The link for the study was dis- tributed through an information leaflet, email and university social networking sites. The researchers requested the informed consent the participants, informed the participants of the general purpose of the study, and that their participation was voluntary and anonymous and that they were free to leave the study at any time. Once the participants provided their consent, they were given access to the online survey. In addition, they were provided with the email address of one of the researchers in case they desired more information about the study. The questionnaire took 20–30 min to complete.

3. **Results**

3.1. *Development of the Cyber Dating Abuse Questionnaire (CDAQ)*

The development of the CDAQ was achieved in four phases: (a) review of the previous literature; (b) performing a qualitative ana- lysis through interviews with the victims of cyber dating abuse; (c) review of the instrument by experts; and (d) a pilot study of the questionnaire.

First, we conducted a thorough review of the previous literature to identify cyber abuse behaviors in a dating context. From this review, we developed an initial screening list of 10 questions to identify victims of cyber dating abuse.

This initial list was admin- istered to 433 college students (mean age 20.39 years, *SD* = 2.06, range = 18–30 years, 60% female) to identify individuals who had been victims of cyber dating abuse. The identification was conduct- ed by selecting those questionnaires that had higher frequencies in the types of aggression included (two or more times on at least three of the behaviors assessed). The students with higher frequen- cies were contacted to conduct an in-depth interview about the types and contexts of online harassment they had suffered in their relationships. Thus, we conducted in-depth interviews with seven victims of cyber dating abuse. We performed a qualitative analysis of the content of the interviews, which provided relevant informa- tion on the types of cyber abuse and the circumstances in which it occurs.

Based on the literature review and the qualitative analysis of the victim interviews, we developed an initial set of 52 perpetra- tion and victimization behaviors to measure various forms of cyber dating abuse, including examples of control, threats, identity theft, humiliation, invasion of privacy, and information dissemination. This initial version was reviewed by a group of psychologists and researchers (who were specialists in psychological research and methodological issues), who assessed the adequacy of each item and made suggestions for improvement, content, and formulation. This also allowed us to identify the most relevant items to use and to eliminate other items that were redundant.

Next, we conducted a pilot test of the questionnaire among uni- versity students. The questionnaire was administered to two groups of 20 students. The students completed the questionnaire and then discussed the issues related to comprehension problems, potential redundancies or omissions and the

appropriateness of the language used. This pilot study improved several aspects of item formulation and comprehension. The final version of the questionnaire consisted of 40 items, 20 for perpetration and 20 for victimization, which measured a wide range of behaviors of cyber dating abuse. The full scale is included in Appendix 1.

3.2. *Factorial validity*

The analysis of the internal structure of the CDAQ was per- formed using Exploratory Factor Analysis (EFA) of Principal Axes with Varimax rotation and Confirmatory Factor Analysis (CFA). To this end, the sample was divided randomly into two subsamples of 388 and 400 participants. On the one hand, EFA allows us to identify the underlying empirical structure and the relationships between measured variables. It is commonly used by researchers when developing a new scale (Field, 2013), as it is the case of the CDAQ. On the other hand, CFA is aimed at testing whether the data fit a hypothesized measurement model. This hypothesized model is based on theory and/or previous analytic approach (Byrne, 2013); in the present study, we based the confirmatory analyzes on the previous exploratory results.

For the exploratory factor analysis, .40 was established as the minimum loading for an item to be part of a factor. The factor loadings and mean and standard deviations of items are shown in Table 2. The Kaiser measure of sampling adequacy was .83 for perpetration and .86 for victimization. Inspection of the eigenval- ues and scree plot suggested a two-factor structure for the scale of Perpetration and for Victimization. In the case of the scale of Per-

petration, the first factor explained 25.64% of the total variance. Content analysis of the items that had presented factor loadings on this factor revealed that these items refer to behaviors that are intended to cause harm to the couple directly (e.g., *''My partner or former partner threatened to hurt me physically through new technologie''*). Therefore, this factor was named *Direct aggression*. All these items had factor loadings greater than .40. The second factor explained 15.41% of the total variance and included items related to the control of the partner or former partner or the inva- sion of their privacy (e.g., *''I controlled my partne´rs or ex-partne´rs wall status updates on social networks''*), so it was called *Control/ Monitoring*. All these items except one had factor loadings greater than .40. Only one item (''I sent insulting and/or humiliating mes- sages to my partner or former partner using new technologies'') showed factor loadings lower than .40 in both factors of perpetra- tion. Regarding the scale of Victimization, the EFA also revealed two factors (eigenvalues > 1; inspection scree plot) that were par- allel to those in the scale of Perpetration. The first factor, *Direct aggression*, explained 31.36% of the total variance. This factor con- tains items that refer to behaviors experienced by the partner or former partner, such as humiliation, threats, identity theft, that were intended to harm the victim (e.g., *''My partner or former part- ner commented on a wall of a social network to insult or humiliate me''*). All these items presented factor loads above .43. The second factor, which we call *Control*/*Monitoring*, explained 17.33% of the total variance. This factor included items that refer to controlling behaviors of the partner or former partner (e.g., ''*My partner or ex-partner has controlled the time of my last connection to mobile applications*'').

Because previous multivariate analyzes have shown that the

distribution of the items was not normal, the parameters for the CFA were estimated using a polychoric matrix and asymptotic covariance of the items of the CDAQ. The theoretical model was tested with the method of weighted least squares with LISREL 8.80 (Jöreskog & Sörbom, 2006). The root mean square error of approximation (RMSEA), the comparative fit index (CFI), the non- normative fit index (NNFI), and the standardized residual mean root (SRMR) were used to evaluate the goodness of fit. According to several authors (Hu & Bentler, 1999), CFI and NNFI values greater than .90 and RMSEA and SRMR values less than .08 reflect an acceptable fit. A four-factor model was tested that included the two factors of both perpetration and victimization from the EFA. We included the item ''I sent insulting and/or humiliating mes- sages to my partner or former partner using new technologies'' (which presented loadings lower than .40 in the EFA for perpetra- tion) into the subscale of direct aggression to keep the content con- sistency with the rest of the items and with the subscale of victimization. Given that the items of perpetration and victimiza- tion are parallel, we allowed measurement errors of parallel items

to correlate. The four-factor solution, showed good fit, v2 (714,

n = 400) = 1628, RMSEA = .076 (90% CI [.072,.079], p = .36,

CFI = .99, NNFI = .99. All the factor loadings were significant ($p < .001$) and ranged between .58 and 1 (see Table 3).

The correlation between perpetration and victimization was .67 for Direct aggression and .69 for Control. The correlation between perpetration of direct aggression and control was .30, and the cor- relation between victimization of direct aggression and control was .35.

Table 2
Exploratory factorial structure of the CDAQ.

Item	Perpetration				Victimization			
	Factor 1		Factor 2		Factor 1		Factor 2	
	Factor loadings	Mean (*SD*)	Factor loadings	Mean (*SD*)	Factor loadings	Mean (*SD*)	Factor loadings	Mean (*SD*)
Spreading rumors, gossip and/or jokes through new technologies with the intention of ridiculing	.64	1.04 (.33)	.08		.73	1.05 (.39)	.12	
Threats through new technologies to physically harm	.52	1.01 (.26)	.01		.72	1.03 (.34)	.02	
Creating a fake profile on a social network to cause problems	.69	1.00 (.00)	.00		.71	1.02 (.25)	—.05	
Spreading secrets and/or compromised information using new technologies	.49	1.03 (.25)	.20		.70	1.06 (.39)	.10	
Threatening to spread secrets or embarrassing information using new technologies	.61	1.01 (.12)	.07		.67	1.05 (.39)	.15	
Writing a comment on the wall of a social network to insult or humiliate	.62	1.01 (.16)	.05		.64	1.06 (.39)	.13	
Using new technologies to pretend to be me/my (ex) partner and create problems	.58	1.01 (.07)	.18		.59	1.04 (.36)	.08	
Sending and/or uploading photos, images and/or videos with intimate or sexual content without permission	.66	1.01 (.22)	.06		.57	1.01 (.17)	.01	
Pretending to be another person using new technologies to test a partner	.57	1.03 (.21)	.11		.52	1.10 (.43)	.20	
Posting music, poems, phrases … on a social networking site with the intent to insult or humiliate	.40	1.05 (.27)	.24		.43	1.08 (.45)	.35	
Sending insulting and/or demeaning messages using new technologies	.18		.29	1.14 (.57)	.43	1.23 (.77)	.35	
Controlling friends on social networks	.01		.62	1.98 (1.28)	.11		.75	1.94 (1.39)
Using new technologies to control where you are/I am and with whom	.12		.68	1.88 (1.24)	.20		.74	1.89 (1.38)
Checking a partner's mobile phone without permission	.12		.66	1.83 (1.19)	.08		.72	1.73 (1.20)
Checking social networks, Whatsapp or email without permission	.07		.69	1.81 (1,28)	.07		.71	1.65 (1.13)
Excessive calls to control where you are/I am and with whom	.15		.54	1.28 (.75)	.18		.65	1.51 (1.07)
Controlling status updates on social networks	—.00		.57	2.82 (1.77)	.01		.64	2.52 (1.75)
Checking the last connection in mobile applications	—.02		.54	3.41 (1.71)	—.01		.63	3.18 (1.85)
Using passwords (phone, social networking, email) to browse messages and/or contacts without permission	.11		.60	1.69 (1.17)	.13		.60	1.43 (.95)
Threatening to answer calls or messages immediately using new technologies	.19		.41	1.22 (.69)	.34		.48	1.33 (.97)

The significance of bold values is the loading for each item belong to each factor.

3.3. *Convergent validity*

The analysis of the relationship of cyber dating abuse with offline dating violence and cyberbullying contributed additional evidence of the construct validity of the instrument. The results are shown in Table 4. Both the perpetration and victimization of direct aggression showed significant correlations with offline psy- chological and physical aggression and cyberbullying with a range between .16 and .40 (all *p*s < .001). Additionally, regarding control, both victimization and perpetration correlated significantly with both offline physical and psychological violence and cyberbullying with values ranging from .18 to .47 (all *p*s < .001). It is noteworthy that there was an association between control and offline psycho- logical violence both in terms of victimization and perpetration (r = .47 for both).

3.4. *Reliability*

The internal consistency for the Direct Aggression Perpetration scale was a = .73, a = .84 for the Direct Aggression Victimization scale, a = .81 for the Control Perpetration scale and a = .87 for the Control Victimization scale.

3.5. *Prevalence and chronicity*

We also analyzed the frequency and chronicity of cyber dating abuse. The prevalence of direct aggression perpetration was10.6%, and the prevalence

for victimization was 14%. The preva- lence of control victimization was 75%, and the prevalence for per- petration was 82%. To obtain more precise information on the frequency of each type of aggression among only those who have suffered such aggression, we calculated chronicity over the past year (Straus & Ramirez, 2007). The participants who committed cyber abuse tended to repeat it several times. Thus, the chronicity of direct aggression perpetration was 5.16 times last year (SD = 5.20) and 4.83 times last year (SD = 4.75) for victimization. The chronicity of control perpetration was 6.97 times last year (SD = 4.78) and 7.01 times last year (SD = 4.78) for victimization.

Table 3
Confirmatory factorial structure of the CDAQ.

Item	Perpetration				Victimization			
	Factor 1	Critical ratio	Factor 2	Critical ratio	Factor 1	Critical ratio	Factor 2	Critical ratio
Spreading rumors, gossip and/or jokes through new technologies with the intention of ridiculing	.90	85.43			1	217.69		
Threats through new technologies to physically harm	.95	136.87			.98	145.84		
Creating a fake profile on a social network to cause problems	.97	98.18			.97	160.90		
Spreading secrets and/or compromised information using new technologies	.92	57.95			.96	95.20		
Threatening to spread secrets or embarrassing information using new technologies	.94	143.96			.97	101.38		
Writing a comment on the wall of a social network to insult or humiliate	1	145.00			1	161.84		
Using new technologies to pretend to be me/my (ex) partner and create problems	.98	144.89			1	207.66		
Sending and/or uploading photos, images and/or videos with intimate or sexual content without permission	1	150.43			1	293.02		
Pretending to be another person using new technologies to test a partner	.96	80.38			1	99.08		
Posting music, poems, phrases... on a social networking site with the intent to insult or humiliate	.90	61.20			.96	93.86		
Sending insulting and/or demeaning messages using new technologies	.63	29.30			.88	58.55		
Controlling friends on social networks			.71	36.91			.88	64.08
Using new technologies to control where you are/I am and with whom.			.86	51.54			.97	77.58
Checking a partner's mobile phone without permission			.95	77.01			.93	89.84
Checking social networks, Whatsapp or email without permission.			.92	87.78			1	135.91
Excessive calls to control where you are/I am and with whom.			.86	49.08			.87	55.48
Controlling status updates on social networks			.73	35.50			.70	35.83
Checking the last connection in mobile applications			.58	25.37			.67	33.27
Using passwords (phone, social networking, email) to browse messages and/or contacts without permission			.89	60.82			.91	73.24
Threatening to answer calls or messages immediately using new technologies			.80	40.83			.89	52.46

$r^{\not}$ < .01: Control (C), Overt aggression (OA), Victimization (V), Perpetration (P). CV-CP: r = .69; OAV-OAP: r = .67; CV-OAV: r = .35; CP-OAV: r = .22; CV-OAP: r = .25; CP-OAP: r = .30.

Table 4
Correlations between cyber dating abuse, offline dating violence and cyberbullying.

	Control (V)	Direct aggression (V)	Control (P)	Direct aggression (P)
Psychological (V)	.47**	.36**	.40**	.28**
Physical (V)	.29**	.40**	.24**	.37**
Cyberbullying (V)	.18**	.33**	.21**	.16**
Psychological (P)	.44**	.20**	.47**	.26**
Physical (P)	.28**	.26**	.29**	.33**
Cyberbullying (P)	.22**	.17**	.26**	.27**

V = Victimization; P = Perpetration.
** p < .001.

Discussion

The main purpose of this study was to develop and validate an instrument for measuring an emerging type of interpersonal vio- lence, namely, cyber dating abuse. This is the first questionnaire that examines cyber dating abuse from a comprehensive perspec- tive, including different online abusive behaviors from the perspec- tives of victimization and perpetration. In addition, the coherent internal structure and good psychometric properties of the instru- ment encourages its use with young adults. The results showed a structure composed of four factors, two for the scale of Victimization and two for the scale of Perpetration, with acceptable internal consistency coefficients.

The components called *Direct Aggression* include deliberate behaviors that are intended to harm the partner, such as threats, insults, or private information dissemination (including photos or videos) and identity theft (e.g., creating a fake partner profile in a social network with the intent to cause harm) through electronic means. The components called *Control/Monitoring* include behav- iors related to surveillance or the invasion of privacy of the partner or former partner, for example, control of the last connections to messaging applications (e.g., Whatsapp) or using personal pass- words. These differentiations are of great importance in consider- ing control a type of online abuse, and they distinguish it from other types of behaviors that are more deliberate and direct in nat- ure. This finding is consistent with previous studies that have con- sidered control to be a distinct type of online dating abuse (Burke et al., 2011;

Darvell et al., 2011).

Cyber dating abuse was associated with other forms of violence such as offline dating violence and cyberbullying, which is consis- tent with the results of previous studies (Hinduja & Patchin, 2011; Schnurr et al., 2013; Zweig et al., 2013). Thus, a higher association was observed between control and offline psychological dating violence both in terms of victimization and perpetration. In gener- al, the associations observed suggest that those who are involved in offline violence are also more likely to engage in online abuse (Bennet et al., 2011; Hinduja & Patchin, 2011; Schnurr et al., 2013; Zweig et al., 2013). In this sense, new technologies could act as a precursor for the continuation of online aggression once face-to-face aggression has been committed (Smith, 2012). Or, on the contrary, new technologies facilitate later offline violence (Melander, 2010), for example, viewing a photo or commenting on a social networking site.

Cyber dating abuse was also associated with cyberbullying. That is, being involved in cyber dating abuse increases the likelihood of being involved in cyberbullying (both victimization and perpetra- tion). These results are in line with those previously found (Cutbush et al., 2010; Hinduja & Patchin, 2011). These findings sug- gest that the ease and immediacy offered by new technologies could encourage various types of online bullying related to various phenomena on the Internet, as is the case with cyberbullying and cyber dating abuse.

An additional objective of this study was to determine the occurrence of this phenomenon among young adults. The results show a high prevalence of cyber dating abuse, specifically, between 70% and 82% for the *Control* factor and between 10% and 14% for *Direct Aggression*. Additionally, the results suggest that the chroni- city of control and intimidation is common among young couples. One possible explanation for these findings is that certain behav- iors of cyber dating abuse, such as constantly monitoring where a partner is or who a partner is with, are interpreted as acceptable expressions of concern and love, which tends toward the normal- ization and repetition of these behaviors within the relationship
(Redondo, Ramis, Girbis, & Schubert, 2011). Moreover, the preva-
lence data in this study are higher than those found in previous studies, where it was found that the incidence of control does not exceed 50% (e.g., Burke et al., 2011; Hinduja & Patchin, 2011; Lyndon et al., 2011; Zweig et al., 2013). One explanation for this is the use of the more comprehensive assessment tool developed in this study to measure online abuse, which includes numerous items that increase the probability of detecting abusive behaviors. Another tentative explanation is the recent increase in the use of social network sites and messaging applications between young people (Ministerio de Energía & Gobierno de España, 2014). More- over, the constant connectivity made possible by new technologies has reduced the notion of individuality and created the feeling that anyone can have the privilege of knowing where someone is and what someone is doing with another person (King Ries, 2011) or post private information that could cause damage to

another per- son because of the distance that these means allow. The consider- able prevalence data from online abuse suggest that new technologies may have become new tools by which to channel con- trol and intimidation behaviors toward one's partner, which previ- ously occurred exclusively face-to-face.

It is also important to note the relationship found between vic- timization and the perpetration of violence in young couples (both direct aggression and control). This relationship has been found in previous studies (Estévez et al., 2010; Kowalski & Limber, 2007) but should be emphasized again in this work. It should be noted that victims and perpetrators are in many cases the same people (Fagan & Mazerolle, 2011). This result is highly relevant, and it is of particular interest to professionals who wish to develop pro- grams to prevent violence because they must direct their efforts to victimization and the perpetration of violence in both men and women.

This study has several limitations. First, the results are based on the self-reports of adolescents via questionnaires, which is a design feature that might have introduced some bias (e.g., increasing the shared method variance). Future studies should include the reports of others (e.g., partners) and should use other assessment tech- niques, such as interviews. Second, this study provides evidence of some of the psychometric properties of the instrument (i.e., fac- torial validity, convergent validity, and reliability), but future stud- ies should provide additional data on other types of validity (e.g., predictive) and the test–retest reliability of the scale. Finally, although the sample is large, it is not representative of the Spanish population. Thus, one must be cautious in generalizing the find- ings. In addition, future studies should analyze the

invariance of factorial structure of the instrument with additional samples, such us adolescents or married couples, as compared to young couples.

In conclusion, the results of this study indicate that the validity of the CDAQ makes it an appropriate instrument for measuring various types of cyber dating abuse. At the applied level, this instrument could be used to estimate the severity of online abuse situations or as a part of a preventive program for working with family violence that could be different manifestations of cyber dat- ing abuse. In conclusion, this study extends the limited empirical evidence of an emerging phenomenon by creating a measurement scale of the phenomenon, which is a starting point to better under- stand this problem and tailor effective strategies to prevent this type of partner abuse.

Acknowledgments

This research was supported by a Deusto University Training Grant (University of Deusto, Bilbao) and Ministerio de Economía y Competitividad (Spanish Government) Grant PSI2012-31550.

Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.chb.2015.01.063.

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